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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,208	04/08/2004	Eric R. Blomiley	MI22-2519	2294
21567 7590 01/10/2008 WELLS ST. JOHN P.S. 601 W. FIRST AVENUE, SUITE 1300 SPOKANE, WA 99201			EXAMINER SONG, MATTHEW J	
			ART UNIT 1792	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/822,208

Applicant(s)

BLOMILEY ET AL.

Examiner

Matthew J. Song

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/19/2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 10, 50 and 51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 10, 50 and 51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/ are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/19/2007.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 51 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 51 recites, "the rotation radiation conduits are configured to receive radiation directly from the spinning substrate" in lines 1-2. There is no support in the original disclosure for this limitation. The original disclosure does not teach "configured to receive radiation directly."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 10 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Boer (US 2006/0057826 A1) in view of Hegedus (US 6,079,874).

Do Boer teaches a deposition apparatus comprising a rotating substrate susceptor ([0039]), this clearly suggests applicant's substrate susceptor being configured to spin while the substrate is received therein and to thereby spin the substrate. Do Boer also teaches heating lamps and heating the wafer to approximately the same temperature as the susceptor ([0019] and [0030]). Do Boer also teaches optical fibers are connected to a measuring device for determining temperature by measuring radiation from the backside of the wafer ([0009] and [0033]-[0036]), this clearly suggests applicant's radiation detector. Do Boer also teaches a plurality of rotating optical fibers 37,38 extending through the susceptor (Fig 3C and [0042]) and additional fibers are possible ([0036]), this clearly suggests applicant's plurality of outer rotating radiation conduits being associated with an outer of the annular regions. The plurality of rotating conduits are channeled into a single output to the control system (Fig 3C), this clearly suggests applicant's channeling radiation to a single stationary radiation conduit.

Do Boer does not teach stationary radiation conduits where a plurality of outer rotating radiation conduits being configured to channel radiation to only one of the stationary radiation conduits.

In an apparatus for accurately measuring a temperature of a substrate, note entire reference, Hegedus teaches a first and second probe to receive radiation from a substrate during thermal processing and a junction receives and combines radiation from the first and second probes (Abstract). Hegedus also teaches optic cables **202**, **206** are provided to a optical junction **130** which combines and averages their outputs and the average output is transmitted via another optical cable **212** (col 3, ln 50-65). The junction where two outputs are combined into a single output clearly suggests applicant's stationary radiation conduit and the plurality of conduits are configured to channel radiation to only one of the stationary radiation conduits. Hegedus also teaches the radiation is combined to provide an accurate representation of the temperature of a local region of the substrate by compensating for a temperature gradient between the support structure and the substrate (Abstract). Hegedus teaches a plurality of outer conduits **202**, **202'**, **206**, **206'** and a plurality of junctions where the outputs are combined into a single output **212**, **212'** (Fig 1), which clearly suggests applicant's plurality of conduits and plurality of stationary radiation conduits because the junctions are stationary.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Do Boer by using a plurality of radiation conduits where the outputs are combined and averaged at a stationary conduit, as taught by Hegedus, to provide an accurate representation of the temperature by averaging a plurality of inputs.

Referring to the limitations in the preamble, the recitation apparatus configured to deposit material over a substantially circular semiconductor wafer substrate, the substrate being defined to comprise a plurality of annular regions extending radially inwardly of one another, has not been given patentable weight because the recitation occurs in the preamble. A preamble is

generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Referring to claim 10, the combination of De Boer and Hegedus teaches fibers ([0042]).

Referring to claim 51, the combination of De Boer and Hegedus teaches one or more optical fibers are inserted into the susceptor ('826 [0036]), this clearly suggests conduits are configured to receive radiation directly from the substrate because the conduit (the fibers) are inserted into the susceptor to monitor the wafer.

Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over De Boer (US 2006/0057826 A1) in view of Hegedus (US 6,079,874) as applied to claims 1 and 10 above, and further in view of Doitel et al (US 5,944,422).

The combination of Do Boer and Hegedus teaches all of the limitations of claim 50, as discussed previously, except the rotating radiation conduits are within a shaft, wherein the stationary radiation conduits are within a receptor, and further comprising a coupling between the shaft and receptor that enables vacuum to be maintained within the shaft while the substrate is spinning.

In an apparatus for measuring temperature, note entire reference, Doitel et al teaches an optical fiber 30 extends for the complete length of a shaft 12 and terminates adjacent to a thermal detector assembly 31 (col 3, ln 1-65), this clearly suggests applicant's receptor. Doitel et al also

teaches a vacuum seal at the lower end of the shaft (col 2, ln 60-67), this clearly suggests applicant's coupling enables vacuum to be maintained in the shaft. Doitel et al teaches the shaft is enclosed by a liner to protect it from the deposition of substances (col 4, ln 20-40) and the shaft is water cooled (col 2, ln 40-67). Doitel et al also teaches processing of the wafer may involve rotation of the wafer (col 5, ln 50-55), this clearly suggests applicant's vacuum is maintained within the shaft while the substrate is spinning.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Do Boer and Hegedus by enclosing the optical fibers in a shaft, as taught by Doitel et al, to protect the optical fiber from the deposition of gases and high temperatures.

Response to Arguments

Applicant's arguments with respect to claim 51 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 10/19/2007 have been fully considered but they are not persuasive.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). De Boer is not relied upon to teach a plurality of stationary radiation conduits. Hegedus teaches a plurality of optical fibers are

combined into a plurality of a junctions to provide an accurate representation of the temperature of a local region of a substrate.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). De Boer is not relied upon to teach a plurality of stationary radiation conduits. Hegedus teaches a plurality of optical fibers are combined into a plurality of a junctions to provide an accurate representation of the temperature of a local region of a substrate. The combination of the rotating conduits taught by De Boer to the plurality of stationary conduits (junctions) as illustrated in Figure 1 of Hegedus.

Applicant's argument that Hegedus does not teach a substrate susceptor is noted but not found persuasive. Applicant alleges that De Boer teaches methods of measuring the temperature of a susceptor and Hegedus does not use a susceptor thus the combination is improper. Both De Boer and Hegedus are directly related to the measuring of temperature of a substrate using optical fibers. Hegedus is merely relied upon to teach that combining measurements from a plurality of optical fibers 202', 206' via stationary conduits 212', 130' (Figure 1) is known in the art. The mere lack of a susceptor does not render the combination invalid because a person of ordinary skill in the art would understand that De Boer suggests a single stationary conduit for two inputs ([0042]-[0043] and Fig 3C) could be modified to include more optical fibers and more stationary conduits as taught by Hegedus.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Song whose telephone number is 571-272-1468. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Matthew J Song
Examiner
Art Unit 1792

MJS
January 3, 2008

*/Robert Kunemund/
Robert Kunemund
Primary Examiner
TC 1700*